

Listing of Claims

Please amend the claims as follows. This listing of claims will replace all prior versions and listings of claims in the application:

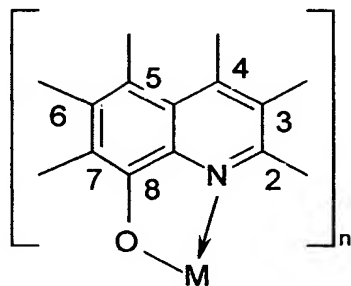
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Claims

1. – 36. (Canceled)

37. (New) An electroluminescent composition consisting essentially of a mixture
10 of an organometallic compound having the general chemical formula $M(L)_n$ or $MO(L)_{n-2}$,
where M is a metal in a valency state n of greater than 3, L is an organic ligand wherein the
ligands L can be the same or different, and an effective amount of a fluorescent dopant.

38. (New) An electroluminescent composition as claimed in claim 37 wherein the
15 organometallic compound has the general chemical formula



where M is a metal selected from the group consisting of titanium, zirconium or hafnium,
each being in the four valency state, or from the group consisting of vanadium, niobium or
tantalum, each being in the five valency state; n is the valency state of the metal M, and

further wherein the substituents are the same or different in the 2, 3, 4, 5, 6 and 7 positions, said substituents being selected from the group consisting of alkyl, alkoxy, aryl, aryloxy, sulphonic acids, esters, carboxylic acids, amino and amido groups, aromatic, polycyclic and heterocyclic groups.

5

39. (New) An electroluminescent composition as claimed in claim 37 wherein the dopant is selected from the group consisting of diphenylacridine, coumarins, perylene, quinolates, porphoryin, porphines, pyrazalones and derivatives thereof.

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40. (New) An electroluminescent composition as claimed in claim 37 containing up to 10 mole percent of the fluorescent dopant, based on moles of organometallic complex.

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41. (New) An electroluminescent device comprising in combination: (i) a first electrode, (ii) a layer of electroluminescent composition, and (iii) a second electrode, wherein the electroluminescent composition is a composition according to claim 37.

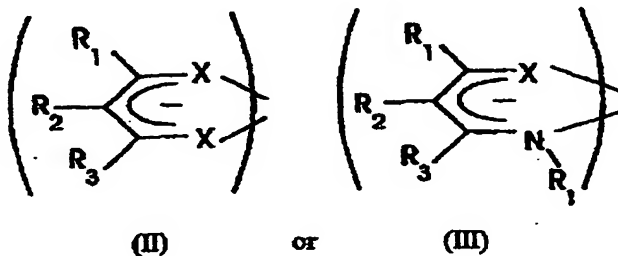
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42. (New) An electroluminescent device comprising in combination: (i) a first electrode, (ii) a layer of a hole transmitting material, (iii) an electroluminescent layer, (iv) a layer of an electron transmitting material, and (v) a second electrode, wherein the electroluminescent layer comprises a layer of an electroluminescent composition according to claim 37.

43. (New) An electroluminescent device as claimed in claim 42 further wherein the hole transmitting layer is an aromatic amine complex; or is formed from a

poly(vinylcarbazole), N,N'-diphenyl-N,N'-bis (3-methylphenyl) -1,1' -biphenyl -4,4'-
diamine (TPD), polyaniline, or a substituted polyaniline; or has a general chemical formula

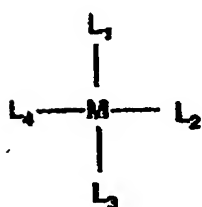
(II) or (III) below:



where R_1 , R_2 and R_3 are the same or different and are selected from hydrogen, and
substituted and unsubstituted hydrocarbyl groups, substituted and unsubstituted aromatic,
heterocyclic and polycyclic ring structures, fluorocarbons, halogens, and thiophenyl groups;
 R_1 , R_2 and R_3 also may be selected from substituted and unsubstituted fused aromatic,
heterocyclic and polycyclic ring structures and can be copolymerisable with a monomer; X is
selected from Se, S or O; and Y is selected from hydrogen, substituted and unsubstituted
hydrocarbyl groups, fluorine, fluorocarbons, halogens, thiophenyl groups, and nitrile groups;

or has a general chemical formula selected from one of the following:

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Fig. 1a

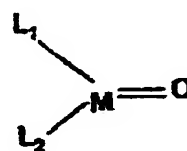


Fig. 1b

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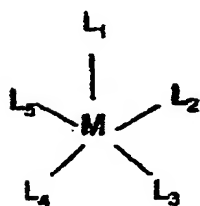


Fig. 1c

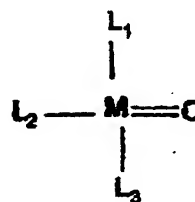
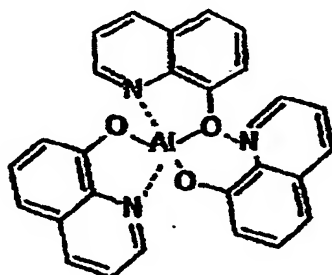


Fig. 1d

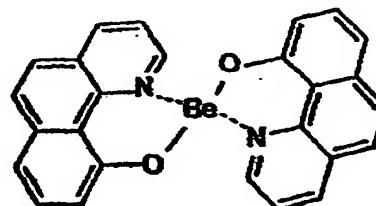
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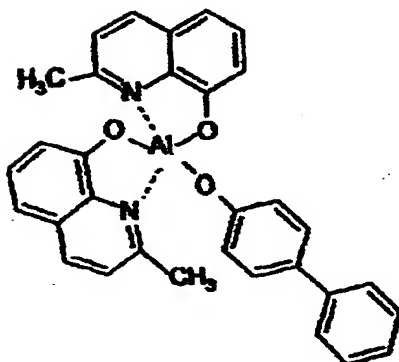
Alq

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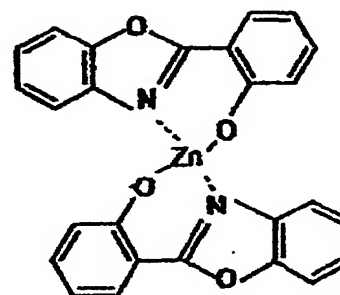


Bebq

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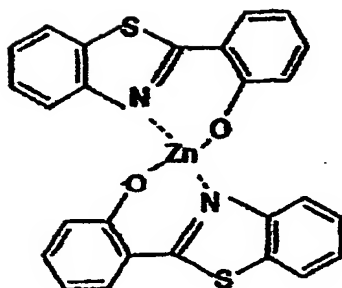


BAq1

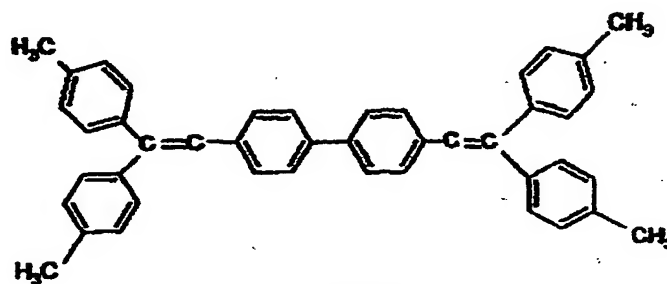


ZnPBO

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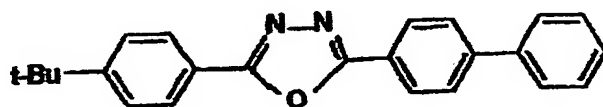
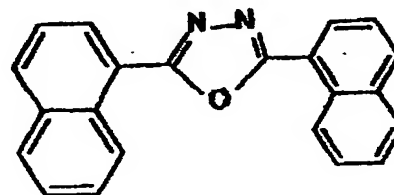


ZnPBT

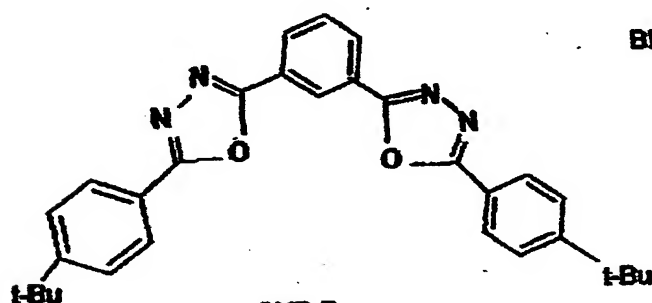


DTVb1

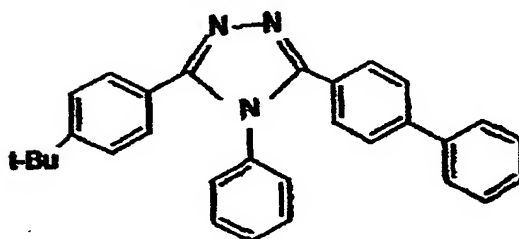
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**t-Bu-PBD****BND**

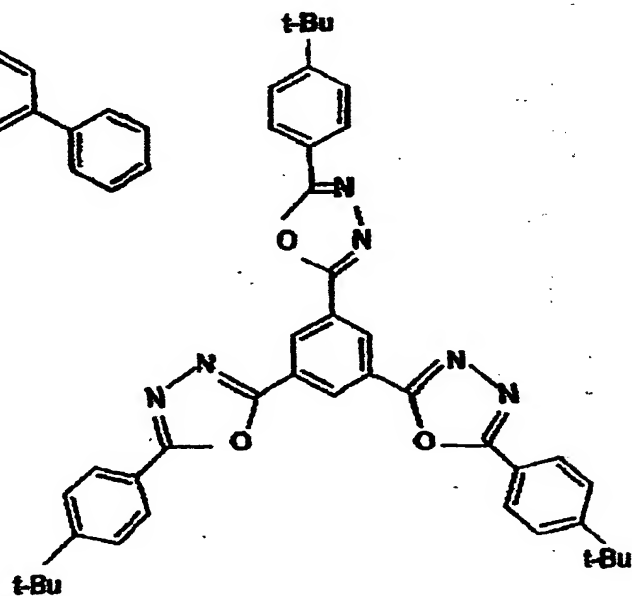
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**OXD-7**

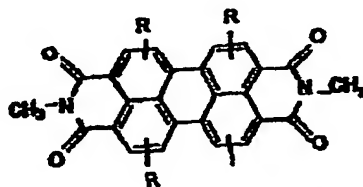
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**TAZ**

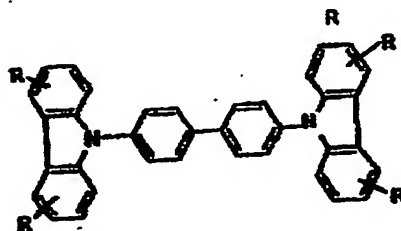
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**OXD-Star**

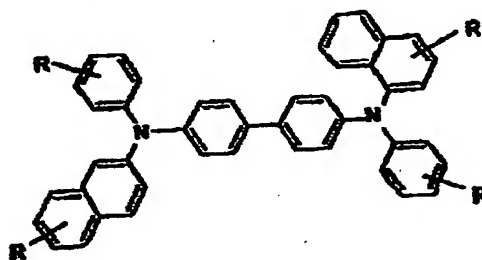
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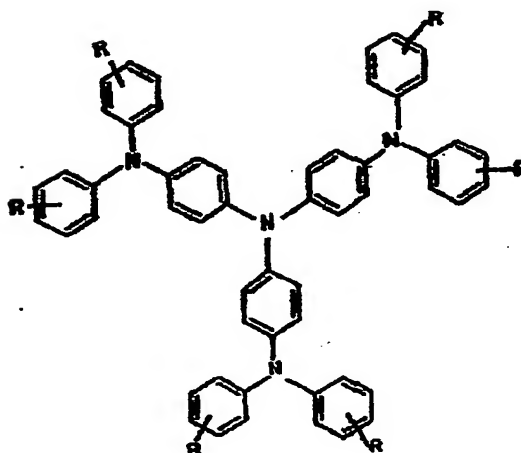
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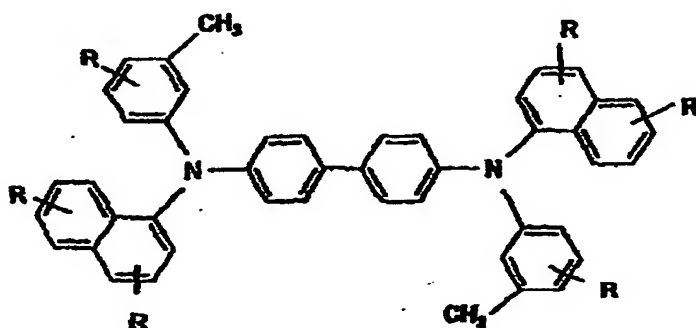
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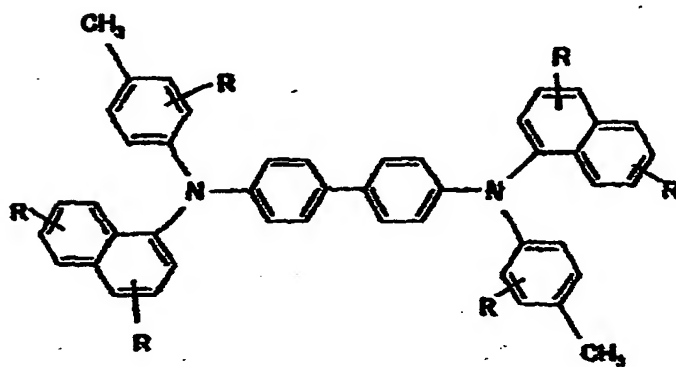
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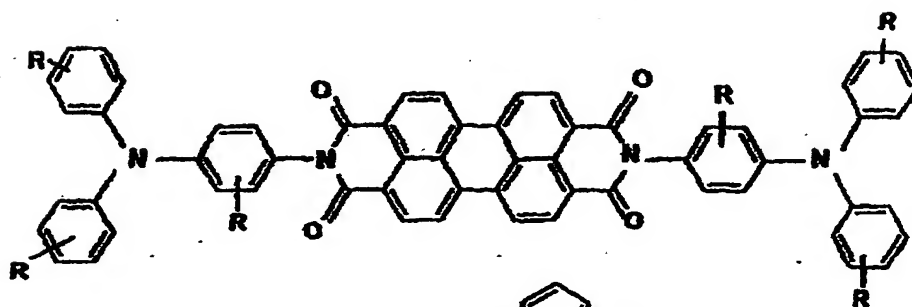
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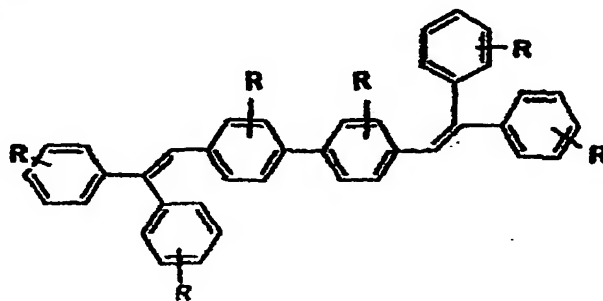
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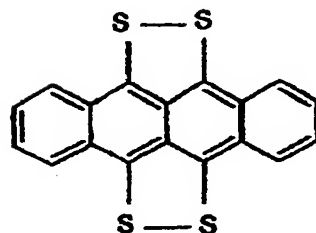
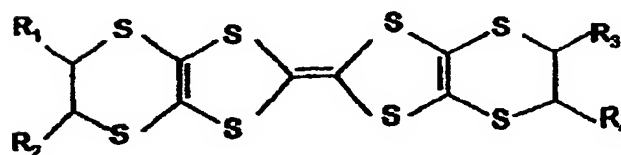
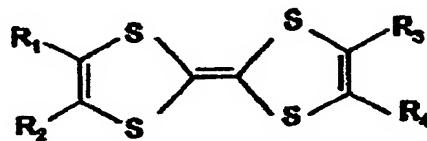
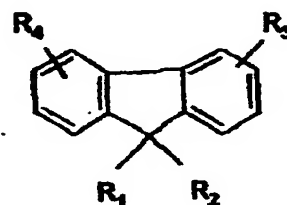
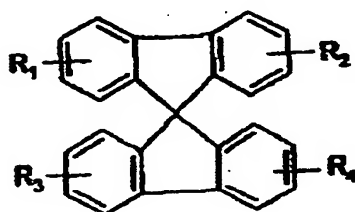


or is selected from poly (p-phenylenevinylene)-PPV and copolymers including PPV, poly(2,5 dialkoxyphenylene vinylene), poly (2-methoxy-5-(2-methoxypentyloxy-1,4-phenylene vinylene), poly(2-methoxypentyloxy)-1,4-phenylenevinylene), poly(2-methoxy-5-(2-dodecyloxy-1,4-phenylenevinylene) and other poly(2,5 dialkoxyphenylenevinylenes) with
5 at least one of the alkoxy groups being a long chain solubilising alkoxy group, poly fluorenes and oligofluorenes, polyphenylenes and oligophenylenes, polyanthracenes and oligoanthracenes, polythiophenes and oligothiophenes.

44. (New) An electroluminescent device as claimed in claim 42 further wherein
10 the electron transmitting material is selected from a metal quinolate, aluminium or scandium dibenzoyl methane, or has a general chemical formula selected from one of the following:

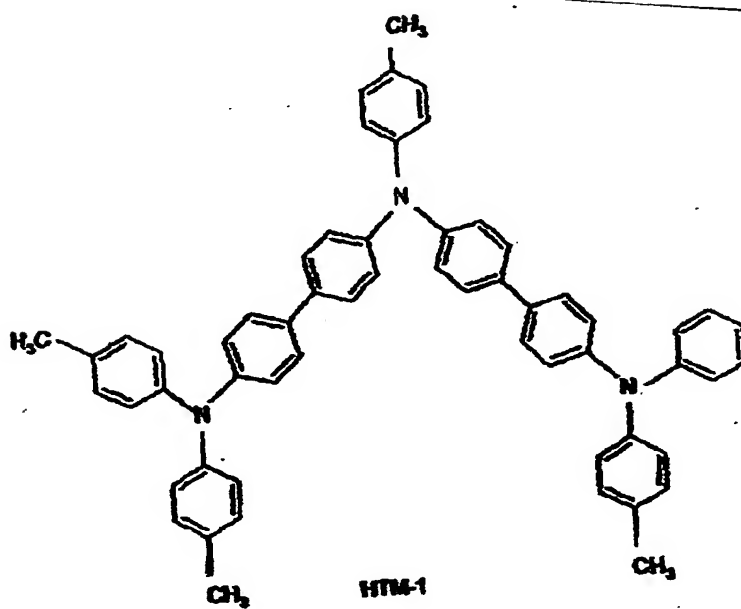
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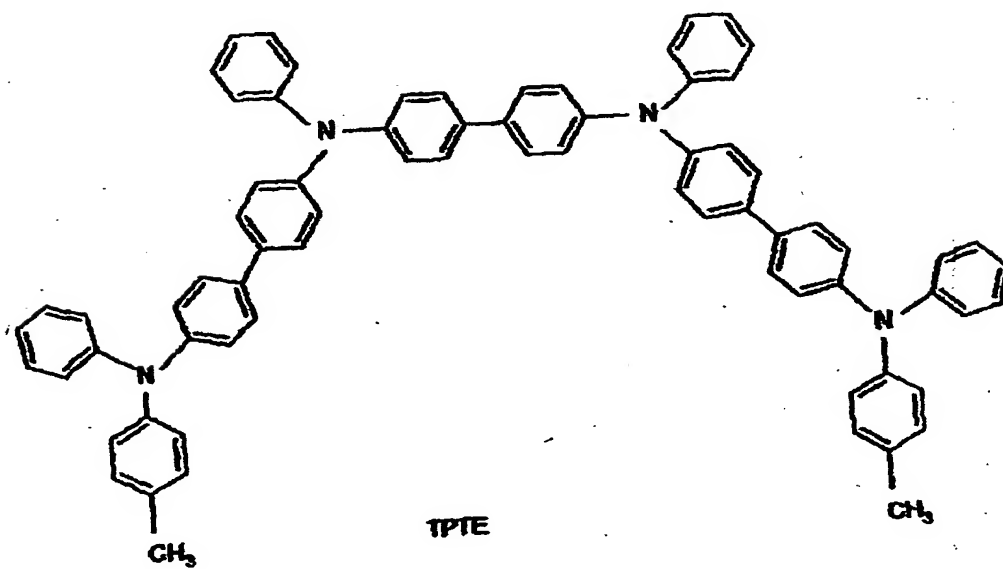
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or is selected from lithium, sodium, potassium, zinc, magnesium or aluminium quinolate.

45. (New) An electroluminescent device as claimed in claim 42 further wherein
5 the hole transmitting material and the electroluminescent compound are mixed to form one
layer in a proportion of the two materials ranging from about 5 to 95% of the hole
transmitting material to 95 to 5% of the electroluminescent compound, or wherein the
electron transmitting material and the electroluminescent compound are mixed to form one
layer in a proportion of the two materials ranging from about 5 to 95% of the electron
10 transmitting material to 95 to 5% of the electroluminescent compound.

46. (New) An electroluminescent device as claimed in claim 42 further wherein
there is a copper phthalocyanine layer on the first electrode and a metal fluoride layer on the
second electrode.

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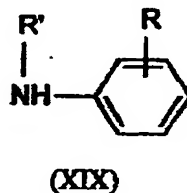
47. (New) An electroluminescent device as claimed in claim 41 wherein there is a
layer of a hole transmitting material positioned between the first electrode and the
electroluminescent layer.

20 48. (New) An electroluminescent device as claimed in claim 47 wherein the hole
transmitting material is an aromatic amine complex.

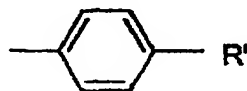
49. (New) An electroluminescent device as claimed in claim 47 wherein the hole
transmitting material is a polyaromatic amine complex.

50. (New) An electroluminescent device as claimed in claim 47 wherein the hole transmitting material is a film of a polymer selected from poly(vinylcarbazole), N,N'-diphenyl-N,N'-bis (3-methylphenyl) -1,1' -biphenyl -4,4'-diamine (TPD), polyaniline, substituted polyanilines, polythiophenes, substituted polythiophenes, polysilanes and substituted polysilanes.

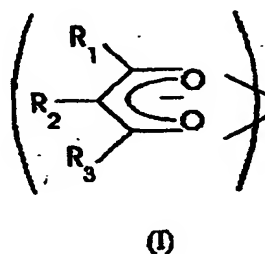
51. (New) An electroluminescent device as claimed in claim 47 wherein the hole transmitting material is a film of a compound having the general chemical formula (XIX) or (XX) below:



- where R is in the ortho- or meta-position and is selected from hydrogen, Cl-18 alkyl groups, Cl-6 alkoxy groups, amino groups, chloro groups, bromo groups, hydroxy groups and the group

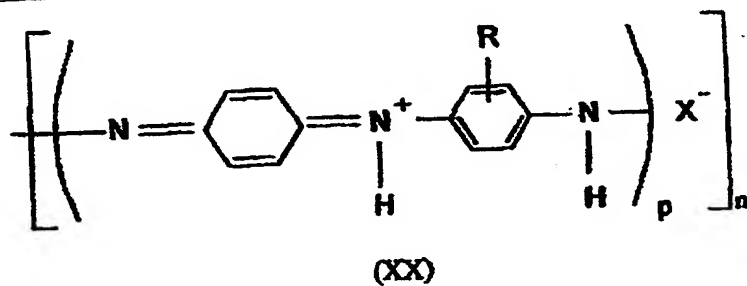


- where R is alkyl or aryl and R' is selected from hydrogen, Cl-6 alkyl groups or aryl groups with at least one other monomer having the general chemical formula I below:



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where p is an integer from 1 to 10, n is an integer from 1 to 20, R is as defined above and X is an anion, selected from Cl, Br, SO₄, BF₄, PF₆, H₂PO₃, H₂PO₄, arylsulphonate, arenedicarboxylate, polystyrenesulphonate, polyacrylate alkylsulphonate, vinylsulphonate, vinylbenzene sulphonate, cellulose sulphonate, camphor sulphonates, cellulose sulphate and a
5 perfluorinated polyanion;

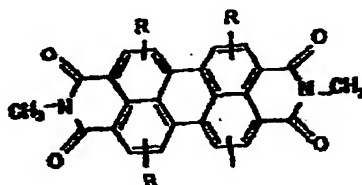
or has a general chemical formula selected from one of the following:

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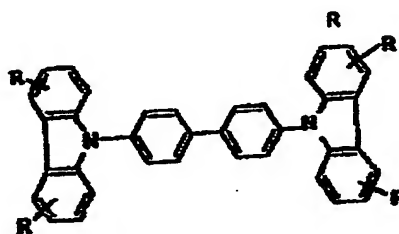
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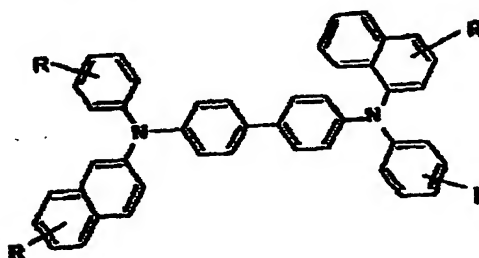
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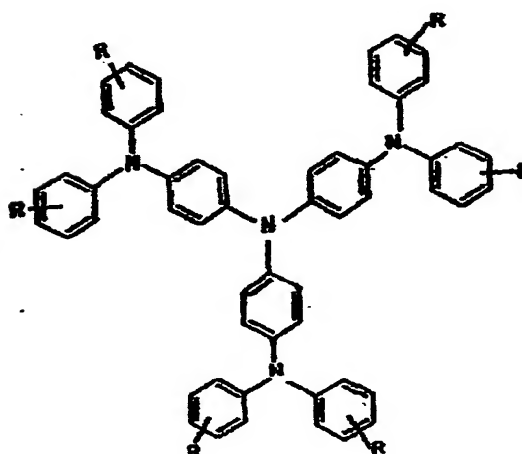
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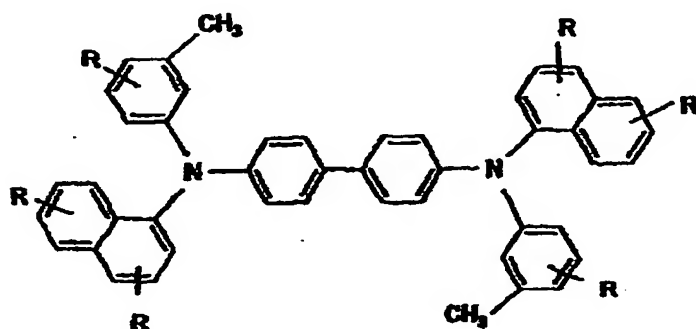
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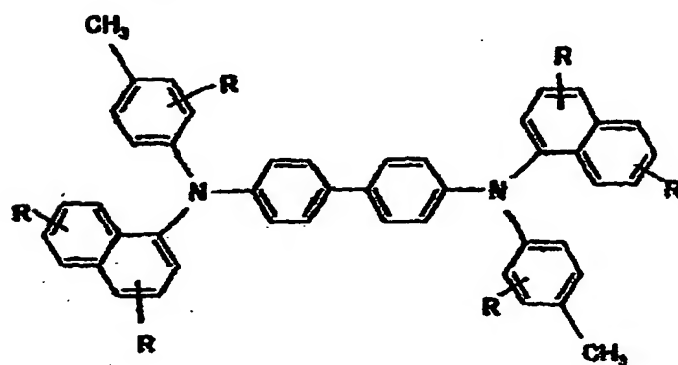
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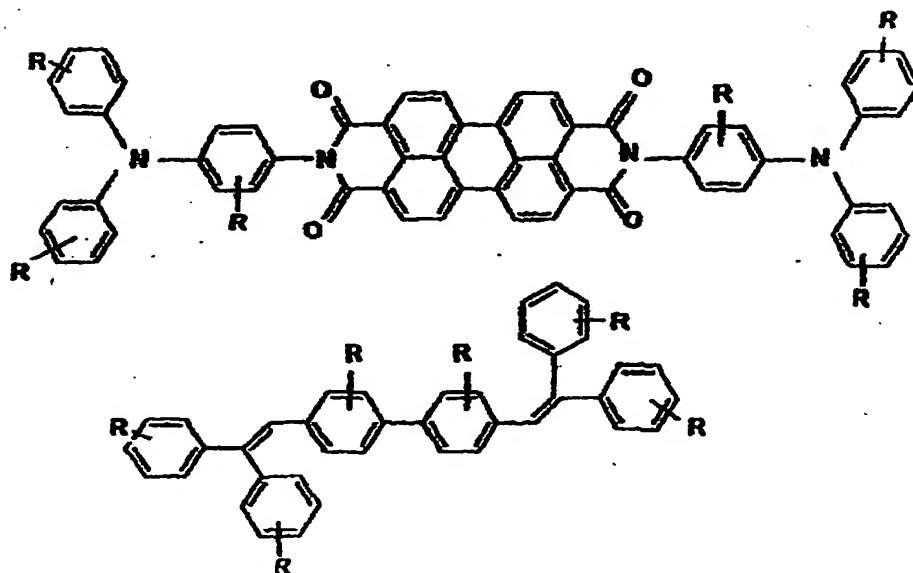
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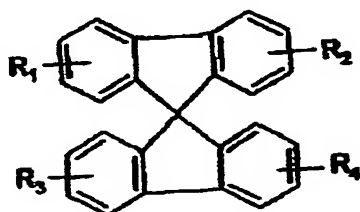


Fig. 14a

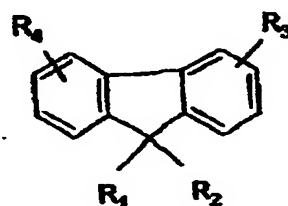
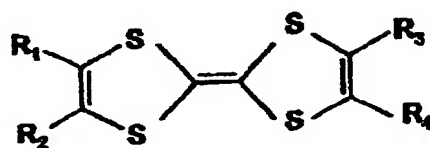


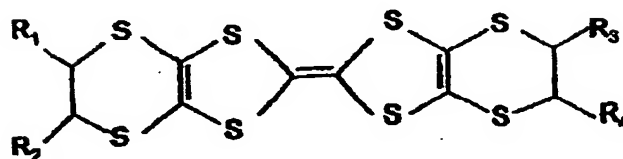
Fig. 14b

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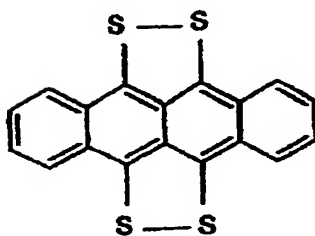


or

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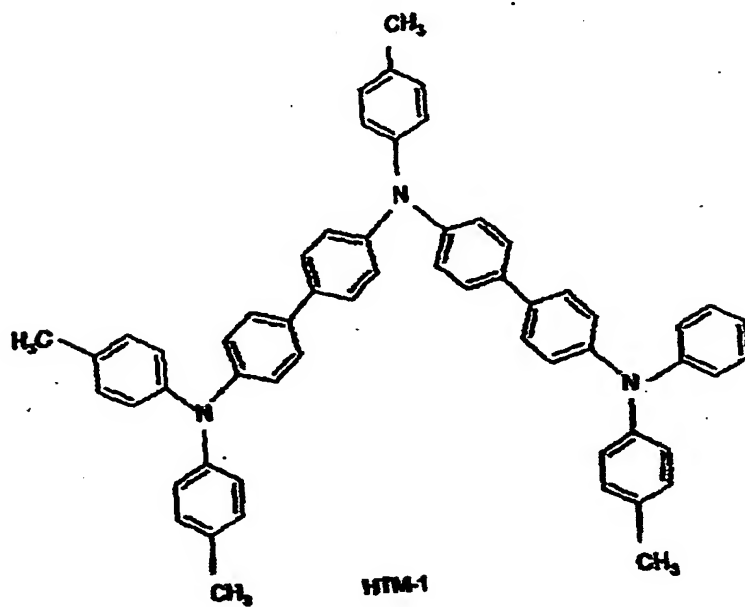


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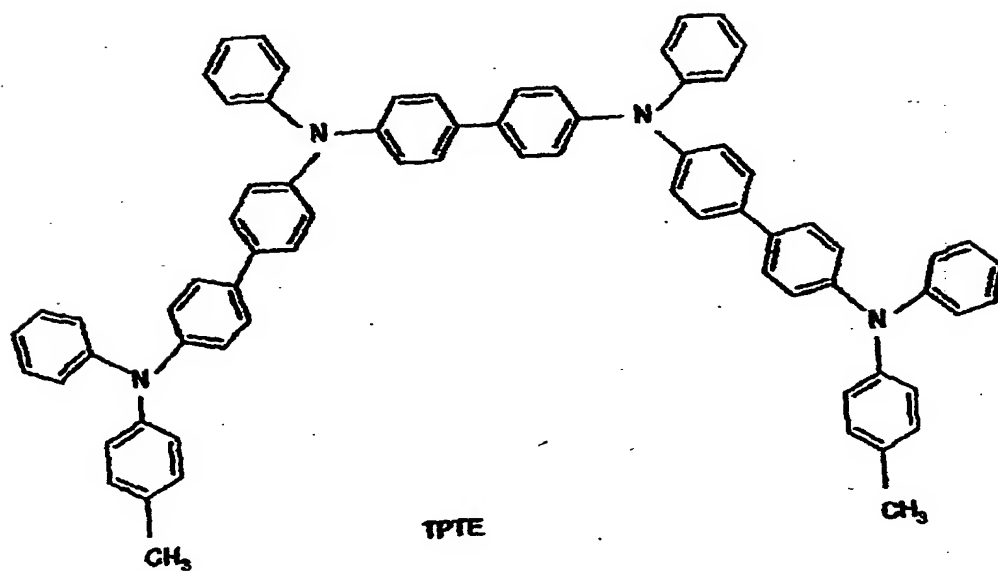
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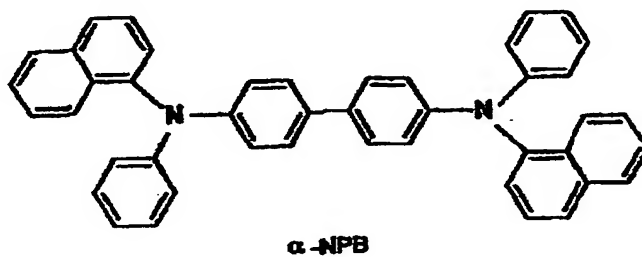


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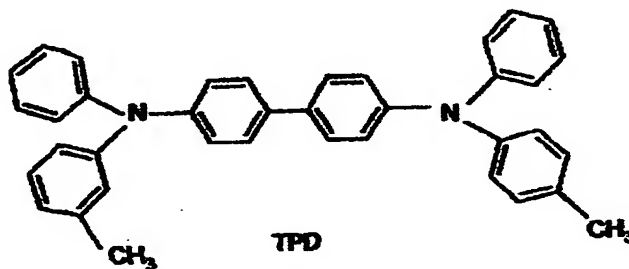
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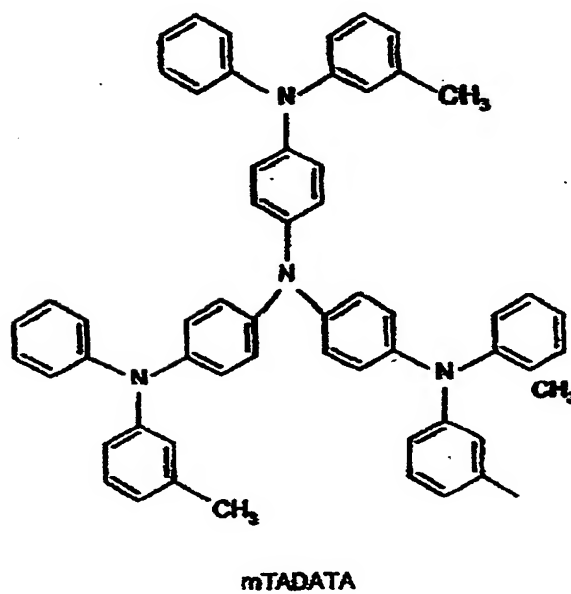


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52. (New) An electroluminescent device as claimed in claim 47 wherein the hole transmitting material is selected from a copolymer of aniline, a copolymer of aniline with o-anisidine, m-sulphanilic acid or o-aminophenol, or o-toluidine with o-aminophenol, o-ethylaniline, o-phenylene diamine or with an amino anthracene.

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53. (New) An electroluminescent device as claimed in claim 47 wherein the hole transmitting material is a conjugated polymer.

54. (New) An electroluminescent device as claimed in claim 53 wherein the
10 conjugated polymer is selected from poly (p-phenylenevinylene)-PPV and copolymers of PPV, poly(2,5 dialkoxyphenylene vinylene), poly (2-methoxy-5-(2-methoxypentyloxy-1,4-phenylene vinylene), poly(2-methoxypentyloxy)-1,4-phenylenevinylene), poly(2-methoxy-5-(2-dodecyloxy-1,4-phenylenevinylene) and other poly(2,5 dialkoxyphenylenevinylenes), further wherein at least one alkoxy group of said polymers is a long chain solubilising alkoxy
15 group; poly fluorenes and oligofluorenes; polyphenylenes and oligophenylenes; polyanthracenes and oligo anthracenes; and polythiophenes and oligothiophenes.

55. (New) An electroluminescent device as claimed in claim 47 wherein the electroluminescent compound is mixed with an effective amount of the hole transmitting
20 material.

56. (New) An electroluminescent device as claimed in claim 47 wherein one of said electrodes is a cathode and further wherein there is a layer of an electron transmitting material between the cathode and the electroluminescent compound layer.

5 57. (New) An electroluminescent device as claimed in claim 56 wherein the electron transmitting material is a metal quinolate.

58. (New) An electroluminescent device as claimed in claim 57 wherein the metal quinolate is selected from aluminium quinolate, zirconium quinolate, and lithium quinolate.

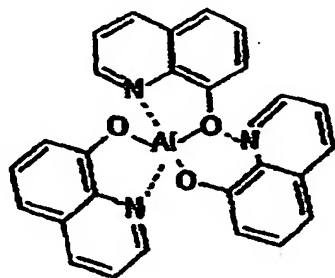
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59. (New) An electroluminescent device as claimed in claim 57 wherein the electron transmitting material has the general chemical formula $Mx(DBM)_n$, where Mx is a metal, DBM is dibenzoyl methane, and n is the valency of Mx.

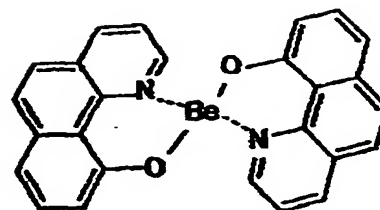
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60. (New) An electroluminescent device as claimed in claim 56 wherein the electron transmitting material is a cyano anthracene, a polystyrene sulphonate, or a compound having a general chemical formula selected from one of the following:

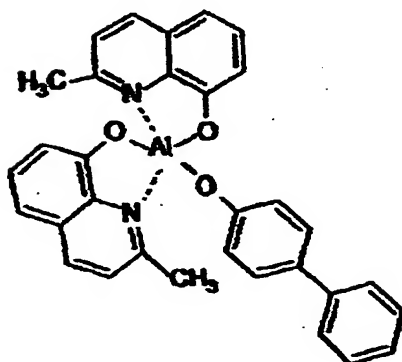
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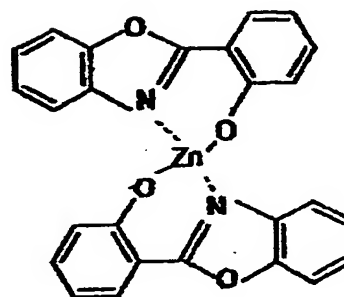
Alq



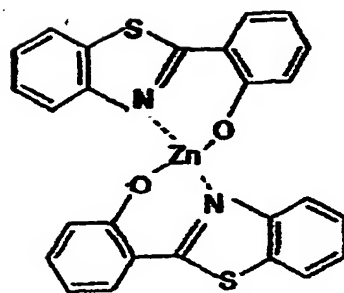
Bbbq



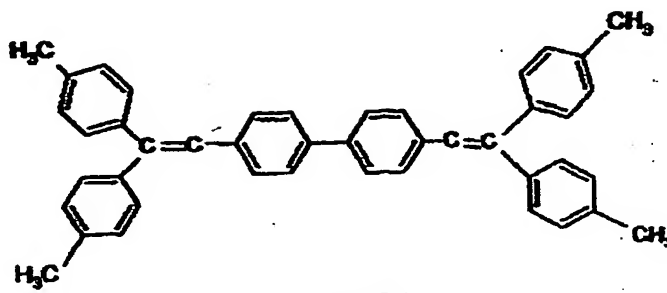
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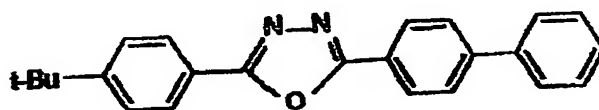
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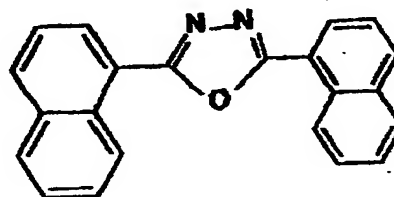
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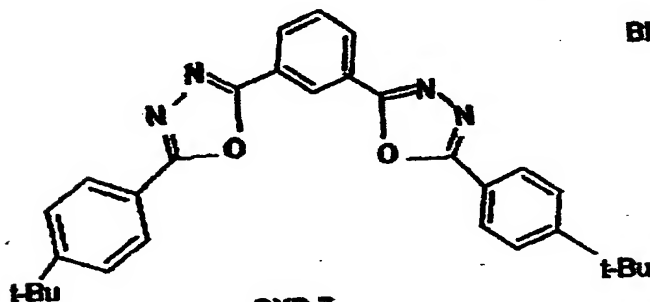
DTVb1



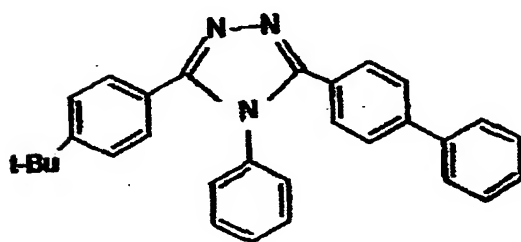
t-Bu-PBD



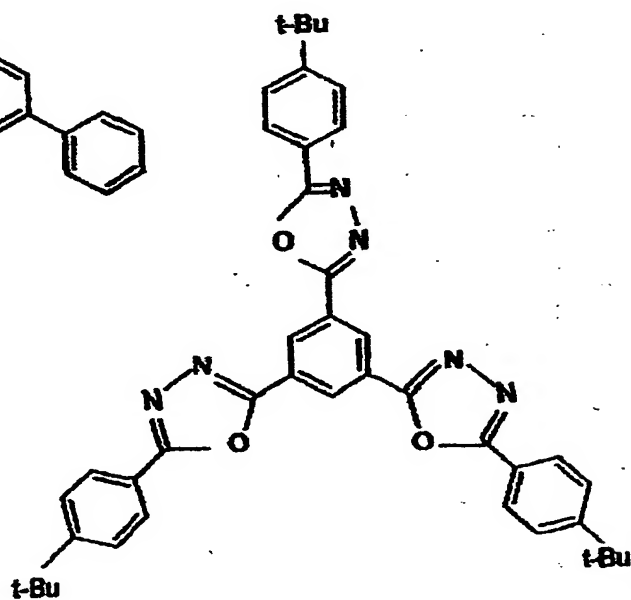
BND



OXD-7



TAZ



OXD-Star

61. (New) An electroluminescent device as claimed in claim 56 wherein the electron transmitting material is mixed with an effective amount of the electroluminescent compound.

5 62. (New) An electroluminescent device as claimed in claim 47 wherein the first electrode is a transparent electricity conducting glass electrode.

63. (New) An electroluminescent device as claimed in claim 47 wherein the second electrode is selected from aluminium, calcium, lithium, magnesium and alloys thereof, and silver/magnesium alloys.

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